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In re Application of: §
§
JAN SCOTT ZWOLINSKI § Examiner:
§
Serial No. §
§
Filed: **24 MARCH 1998** § Art Unit:
§
For: **METHOD AND APPARATUS** §
FOR PROVIDING A HANDHELD §
SCANNER-DICTIONARY APPARATUS §

TRANSMITTAL

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Sir:

Enclosed find:

- Patent Application and claims;
- Eleven (11) sheets of drawings;
- Declaration;
- Check for \$395.00 for the basic filing fee;
- PTO-1449, Information Disclosure Statement and cited reference
- Our return postcard, which we would appreciate your date-stamping and returning to us upon receipt.

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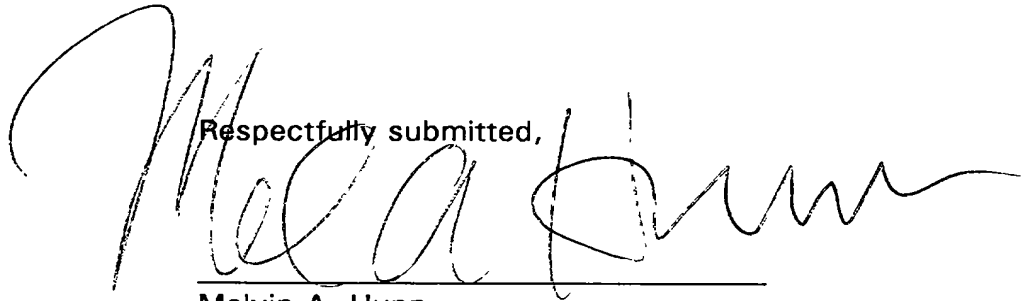
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Signature

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Please conduct all correspondence in the above matter with:

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Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'Melvin A. Hunn', is written over a horizontal line.

Melvin A. Hunn
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Attorney for Applicant

SPECIFICATION

Docket No. 0417MH-26063

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN that I, **JAN SCOTT ZWOLINSKI**, a citizen of the United States of America, residing in the City of Graford, Texas, have invented new and useful improvements in a

METHOD AND APPARATUS FOR PROVIDING A HANDHELD SCANNER-DICTIONARY APPARATUS

of which the following is a specification:

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BACKGROUND OF THE INVENTION

1. Cross-Reference to Related Application:

This application claims the benefit of U.S. Provisional Patent Application Serial No. 60/041,534; filed 25 March 1997, entitled *Method and Apparatus for Providing a Handheld Scanner-Dictionary Apparatus*.

2. Field of the Invention:

The present invention relates in general to portable electronic devices, and particularly to portable electronic devices which are useful for providing dictionary and/or translation functions for a reader.

3. Description of the Prior Art:

Readers frequently incur words in reading material which they do not fully understand. Their options are to utilize a conventional dictionary to look up the words, or a handheld keypad-type dictionary device in order to look up the words electronically. Both have their disadvantages. The conventional dictionary requires a reader to manipulate a relatively cumbersome device and locate the entry by turning pages. The electronic device requires the reader to directly key in the word for which he/she seeks a definition.

SUMMARY OF THE INVENTION

It is one objective of the present invention to provide a portable handheld device which combines the functions of a scanner with a portable electronic dictionary device with an LCD or other display for displaying the definition of the word that has been scanned in with the device.

It is another objective of the present invention to provide the handheld scanner dictionary with an optional keypad operation which allows the user to physically manipulate a keypad or to utilize a stylus and a graphical user interface keypad in order to key in the word for which a definition is sought.

It is another objective of the present invention to provide a handheld scanner-dictionary which includes an alternative voice operation which utilizes a microphone and a speech-to-text module to receive a word as an input. The handheld scanner-dictionary will then retrieve the definition and either voice-announce the definition or display the definition in an LCD display, or a combination of voice-announce and display.

It is another objective of the present invention to combine the above-identified features of the handheld scanner-dictionary with a conventional pager.

It is another objective of the present invention to provide the above-identified handheld scanner-dictionary with a translation function which fetches a foreign language definition of a particular word that is input into the device.

It is yet another objective of the present invention to provide the above-identified handheld scanner-dictionary with conventional clock and alarm functions.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1A is a pictorial representation of one particular embodiment of the handheld scanner-dictionary of the present invention with a detachable keyboard.

Figure 1B is a pictorial representation of a book.

Figure 1C is a pictorial representation of an alternative embodiment of the handheld scanner-dictionary with an enlarged display area which allows the utilization of a graphical user interface touch screen keyboard input device.

Figure 2 is a block diagram representation of the preferred handheld scanner-dictionary of the present invention.

Figures 3A and **3B** are flowchart representations of scanning operations utilizing the handheld scanner-dictionary of the present invention.

Figures 4A and **4B** are flowchart representations of keypad input operations utilizing the improved handheld scanner-dictionary of the present invention.

Figures 5A and **5B** are flowchart representations of voice input operations utilizing the handheld scanner-dictionary of the present invention.

Figure 6 is a flowchart representation of pager operations utilizing the handheld scanner-dictionary of the present invention.

Figure 7 is a flowchart representation of translation function operations utilizing the scanner-dictionary of the present invention.

1 **Figure 8** is a flowchart representation of the clock and alarm functions
2 utilizing the handheld scanner-dictionary of the present invention.

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DETAILED DESCRIPTION OF THE INVENTION

The handheld scanner-dictionary of the present invention is a device which makes it easy for a reader to "look up" a word encountered during reading with which the reader is unfamiliar or for which the reader desires a precise definition. The handheld scanner-dictionary of the present invention is greatly advantageous over the prior art in that it is easy to use and thus encourages and enhances the reader's quest for an increased or enhanced vocabulary.

The handheld scanner-dictionary of the present invention includes several modes of operation. In a scanning input mode of operation, a scanning device is utilized to scan text into the handheld scanner-dictionary, much in the way that a handheld bar code reader is used to "wand" product information into a cash register. The handheld scanner-dictionary will fetch from memory a dictionary definition corresponding to the scanned word. The dictionary definition is provided to the reader through either an LCD display and/or an audio output device, such as a speaker. This way, the reader may either read the definition or hear the definition, whichever is more convenient.

Another mode of operation is a keypad input mode of operation in which a keypad is utilized to input the word for which a definition is sought. A detachable keyboard may be utilized to physically input the characters of the word for which a definition is sought. Alternatively, a graphical user interface may be provided in the LCD display, which operates as a touch screen. A graphical display of a keyboard may be displayed in the LCD device, and the operator may utilize a stylus to sequentially enter the letters which make up the word for which a definition is sought.

In yet another alternative mode of operation, the handheld scanner-dictionary may be operated in a manner which allows for the voice input of the word for which a

1 definition is sought. In this mode of operation, a microphone and speech-to-text module
2 is utilized to determine the input word for which a definition is sought.

3 Several alternative operations are also provided in the handheld scanner-
4 dictionary, such as: a pager mode of operation, a translation mode of operation, and a
5 clock/alarm mode of operation. These modes of operation and functions will now be
6 described with reference to the figures.

7 **Figure 1A** is a pictorial representation of one embodiment of the handheld
8 scanner-dictionary **11** of the present invention. As is shown, the handheld scanner-
9 dictionary **11** includes a tapered end **13** which terminates at a scanner input **17**, and an
10 elongated rectangular portion **15** with user input buttons **19**, display **21**, and audio output
11 device **20**. In the view of **Figure 1A**, display **21** is shown as displaying an input word **31**
12 and associated definition **33**. Also, as is shown in **Figure 1A**, a detachable keyboard **23**,
13 which includes individually operable keys **25**, is electrically connected to handheld
14 scanner-dictionary **11**. The word for which a definition is sought may be input through
15 either scanner **17** or detachable keyboard **23**. Audio output device **20** may serve a dual
16 function: it may serve as a microphone, and it may serve as a speaker. When audio
17 output device **20** serves as a microphone, the handheld scanner-dictionary **11** may be
18 operated in a voice-input mode of operation wherein the user announces a word as an
19 input to the handheld scanner-dictionary, and the handheld scanner-dictionary **11** utilizes
20 speech-to-text conversion to generate the word, and then look up the definition of the
21 word and either display it or generate an audio output of the definition.

22 **Figure 1B** is a pictorial representation of book **27**. As is shown, book **27**
23 includes textual material, including the word "port". In accordance with the present
24 invention, the handheld scanner-dictionary **11** may be utilized to scan in the word "port"

1 29 and generate a definition either in display 21 or as an output from audio output device
2 20.

3 Figure 1C depicts an alternative embodiment of the handheld scanner-
4 dictionary 41, wherein tapered end 43 terminates at scanning input 47 and body section
5 45 is larger than in the previous embodiment in order to accommodate a larger display 49
6 which may be utilized to present a graphical user interface, touch screen display of a
7 keypad. Graphical user interface display 51 displays the characters which may be
8 selected through utilization of stylus 53 in a conventional manner.

9 Figure 2 is a block diagram representation of the components which make
10 up handheld scanner-dictionary 11, 41 of Figures 1A and 1C. The handheld scanner-
11 dictionary includes a central processing unit 101 and associated power circuit 119, clock
12 circuit 121, ROM 103, and RAM 105, as is conventional. CPU 101 is also communica-
13 tively coupled to infrared receiver/transmitter 117 which may be utilized in a conventional
14 manner to communicate through an infrared link to a desktop or laptop computer in order
15 to exchange data. Optical reader circuit 107 is provided, which provides its output to
16 signal processing circuit 109. Characters may be scanned utilizing the optical reader
17 circuit 107. The signal is processed at signal processing circuit 109 and provided to
18 central processing unit 101. CPU 101 is also connected to microphone 113 through
19 signal processing circuit 115. In the voice-input mode of operation, microphone 113 is
20 utilized to detect voice-enunciated words. Signal processing circuit 115 utilizes a con-
21 ventional speech-to-text system to generate a textual word from the detected voice input,
22 and provide that textual word to CPU 101. CPU 101 is also connected to operator input
23 123 which includes a number of dedicated buttons for commanding and controlling the
24 handheld scanner-dictionary. Such buttons include "On" button 125, "Off" button 127,
25 "Scroll Up" button 129, "Scroll Down" button 131, "Audio On" button 133, and any
26 other conventional or novel command buttons that are desired. CPU 101 is also con-

1 nected to audio driver **135** which drives audio output device **137**. When the operator
2 selects the "Audio On" button, CPU **101** will generate signals which actuate audio driver
3 **135** to energize audio output device **137** to provide a voice definition for the particular
4 word selected. CPU **101** is also connected to LCD display **139** which provides a display
5 of the definition of the word received as an input at the handheld scanner-dictionary
6 device. A touch screen function **141** is provided in order to allow a stylus to be utilized
7 to interact with a graphical user interface in order to key in the characters which make
8 up an input word. Alternatively, CPU **101** is connected to detachable keypad **111** which
9 may be utilized for typing in the input word. As is discussed above, the handheld
10 scanner-dictionary of the present invention may be utilized in combination with a pager.
11 In this particular function, an RF receiver **143** is provided which communicates with
12 paging circuit **145** which is communicatively coupled to CPU **101**. The pager operates
13 in a conventional manner.

14 **Figures 3A and 3B** are flowchart representations of the scanning input mode
15 of operation of the handheld scanner-dictionary of the present invention. The process
16 begins at software block **201** and continues at software block **203**, wherein operator
17 input is monitored. In accordance with software blocks **205** and **209**, the handheld
18 scanner-dictionary monitors to determine whether the operator has turned the device on,
19 and whether the operator has selected the audio output mode of operation. If the device
20 is turned on, the power-up device software module **207** is activated. If the audio output
21 is selected, the software module of activate audio **211** is activated. In accordance with
22 software block **213**, the handheld scanner-dictionary monitors operator input to determine
23 whether a wand operation has commenced. In other words, the handheld scanner-
24 dictionary determines whether a scanning operation has commenced. Once the scanning
25 operation has been detected, the optical reader is activated in accordance with software
26 block **215**, the text is processed in accordance with software block **217**, the text is
27 passed to the CPU **101** in accordance with software block **219**, and CPU **101** fetches the

1 definition from ROM in accordance with software block **221**. Next, in accordance with
2 software block **223**, the handheld scanner-dictionary generates an audio driver signal and
3 an LCD display signal. In accordance with software block **225**, these signals are pushed
4 to the audio output device and to the LCD display. Then, in accordance with software
5 blocks **227**, **231**, the handheld scanner-dictionary monitors operator input to determine
6 whether scrolling operations have been requested. Additionally, the handheld scanner-
7 dictionary monitors to determine whether a repeat of the definition has been requested.
8 If those functions are requested, scrolling is performed in accordance with software block
9 **229**, and repeat of the audio messages is generated in accordance with software block
10 **233**. Finally, in accordance with software block **235**, the process ends.

11 **Figures 4A and 4B** are flowchart representations of the keypad mode of
12 operation. The process begins at software block **251** and continues at software block
13 **253**, wherein the handheld scanner-dictionary monitors for operator input. In accordance
14 with software blocks **255**, **257**, **259**, and **261**, the handheld scanner-dictionary monitors
15 for operator input, for powering up the device, and for activation of the audio output
16 mode of operation. Then, in accordance with software block **263**, the handheld scanner-
17 dictionary monitors for operator selection of the keypad input. Then, in accordance with
18 software block **265**, the handheld scanner-dictionary monitors to determine whether the
19 detachable keypad is connected. If the detachable keypad is not connected, control
20 passes to software block **267**, wherein the handheld scanner-dictionary generates a
21 graphical user interface keypad and activates the touch-screen function in order to allow
22 the operator to utilize a stylus (or, alternatively, his/her finger) in order to select
23 characters as an input to the handheld scanner-dictionary. Next, in accordance with
24 software blocks **269**, **271**, and **273**, the CPU fetches the definition of the word from
25 ROM, generates an audio driver signal and an LCD display signal, and pushes these
26 signals to the audio output and to the LCD display grid. Then, in accordance with soft-
27 ware blocks **275**, **277**, **279**, and **281**, the handheld scanner-dictionary monitors for

1 operator selection of the scrolling function or repeating of the audio output of the
2 definition of the input text. Then, the process ends at software block **283**.

3 **Figures 5A and 5B** are flowchart representations of the voice-input mode of
4 operation. The process begins at software block **301** and continues at software blocks
5 **303, 305, 307, 309, and 311**, wherein the handheld scanner dictionary monitors
6 operator input and determines whether the operator has activated the handheld scanner-
7 dictionary, and selected the audio output mode of operation. Then, in accordance with
8 software block **313**, the handheld scanner-dictionary monitors to determine whether the
9 operator has selected a voice-input mode of operation. If so, the process continues at
10 software block **315**, wherein the handheld scanner-dictionary activates the microphone
11 function. Next, in accordance with software block **317**, the handheld scanner-dictionary
12 processes the audio input and, in accordance with software block **319**, fetches the defin-
13 ition of the input word from ROM. Then, in accordance with software block **321**, the
14 handheld scanner-dictionary generates an audio driver signal and an LCD display signal
15 which is pushed to the audio output and LCD display in accordance with software block
16 **323**. Finally, in accordance with software blocks **325, 327, 329, and 331**, the handheld
17 scanner-dictionary monitors to determine whether the operator has selected the scrolling
18 mode of operation or if the operator has requested a repeat playing of the audio output
19 of the word definition. The process ends at software block **333**.

20 **Figure 6** is a flowchart representation of the pager operation of the handheld
21 scanner-dictionary in accordance with the present invention. The process begins at
22 software block **351** and continues at software block **353**, wherein the handheld scanner-
23 dictionary monitors the radio frequency receiver. In accordance with software block **355**,
24 the handheld scanner-dictionary determines whether a page has been received. If so,
25 control passes to software block **357**, wherein the received page is compared to the
26 pager ID. In accordance with software block **359**, the handheld scanner-dictionary

1 compares the two to determine whether a match occurs. If a match occurs, control
2 passes to software **363**, wherein the CPU is alerted to the incoming page. Then, in
3 accordance with software block **365**, the CPU generates an audio response and an LCD
4 display of the page information, as is conventional. In accordance with software block
5 **367**, the handheld scanner-dictionary announces the page utilizing the audio response and
6 LCD display, and the process ends at software block **369**.

7 **Figure 7** is a flowchart representation of the translation function of the
8 handheld scanner-dictionary of the present invention. The process commences at
9 software block **401** and continues at software block **403**, wherein the handheld scanner-
10 dictionary is provided with a search word. This search word may be received via the
11 scanning input, the keyboard input, or the audio input, as discussed above. In
12 accordance with software block **405**, the handheld scanner dictionary determines whether
13 the translation function has been requested. If so, control passes to software block **407**,
14 wherein the language options are announced or displayed. Then, in accordance with soft-
15 ware block **409**, the handheld scanner-dictionary monitors for the language selection. In
16 this manner, a handheld scanner-dictionary may be programmed to provide translations
17 into several different languages. In accordance with software block **411**, an audio
18 response and display is generated which provides the foreign language translation in both
19 human-perceptible text in the display and human-perceptible audio output from the audio
20 output device. The process ends at software block **413**.

21 **Figure 8** is a flowchart representation of the clock/alarm function of the
22 handheld scanner-dictionary of the present invention. The process begins at software
23 block **415**, commences at software block **417** wherein the handheld scanner-dictionary
24 determines the clock/alarm has been selected. As is conventional with clock/alarm
25 devices, user is presented with a variety of options, including setting the clock in
26 accordance with software blocks **419**, **421**, setting the alarm in accordance with

- 1 software blocks **423**, **425**, and displaying the clock according to software blocks **427**,
- 2 **429**. The process ends at software block **431**.

1 **WHAT IS CLAIMED IS:**

- 2 1. A handheld scanning dictionary apparatus, comprising:
- 3 (a) a relatively small housing adapted in size to be held in one hand by a user
- 4 during use;
- 5 (b) a scanning input carried by said housing;
- 6 (c) a display carried by said housing;
- 7 (d) a controller disposed within said housing and operatively coupled to said
- 8 scanning input, and said display; and
- 9 (e) a program composed of instructions which are executable by said controller
- 10 for receiving as an input text scanned by said scanning input and for
- 11 providing as an output on said display text which is logically related to said
- 12 input text in a predetermined manner.

- 1 2. A handheld scanning dictionary apparatus according to Claim 1, wherein said
2 program receives as an input text scanned by said scanning input and produces as an
3 output on said display at least one dictionary definition related to said input.
- 4 3. A handheld scanning dictionary apparatus according to Claim 1, wherein said
5 program receives as an input text scanned by said scanning input and produces as an
6 output on said display at last one translation related to said input.
- 7 4. A handheld scanning dictionary apparatus according to Claim 1, wherein said
8 relatively small housing comprises a relatively small and generally elongated housing
9 which is adapted in size and shape to be held in one hand by a user during use.
- 10 5. A handheld scanning dictionary apparatus according to Claim 1, further comprising:
11 an input connection for coupling to an external keyboard, and for providing
12 textual input to said controller.
- 13 6. A handheld scanning dictionary apparatus according to Claim 5, wherein said
14 program includes instructions which are executable by said controller for alternatively
15 receiving as an input text which is entered on a keyboard and which provides as an
16 output on said display text which is logically related to said input text in a predetermined
17 manner.
- 18 7. A handheld scanning dictionary apparatus according to Claim 1, further comprising:
19 (f) at least one user control button carried by said housing and operable for
20 providing at least one control command to said controller.

1 8. A handheld scanning dictionary apparatus according to Claim 1, further comprising:
2 (f) an audio output device carried by said housing and operatively coupled to
3 said controller; and
4 (g) a test-to-speech module coupled between said audio output device and
5 said controller;
6 (h) wherein said program includes program instructions for receiving as an input
7 text scanned by said scanning input and for producing as an output on said
8 audio output device an audible output which is logically related to said input
9 text in a predetermined manner.

10 9. A handheld scanning dictionary apparatus according to Claim 8, wherein said
11 program receives as an input text scanned by said scanning input and produces as an
12 output on said audio output device at least one audible output definition related to said
13 input in a predetermined manner.

14 10. A handheld scanning dictionary apparatus according to Claim 8, wherein said
15 program receives as an input text scanned by said scanning input and produces as an
16 output on said audio output device at last one audible output translation related to said
17 input in a predetermined manner.

18 11. A handheld scanning dictionary apparatus according to Claim 8, further comprising:
19 an input connection for coupling to an external keyboard, and for providing
20 textual input to said controller; and
21 wherein said program includes instructions which are executable by said
22 controller for alternatively receiving as an input text which is entered on a keyboard and
23 which provides as an output on said display text which is logically related to said input
24 text in a predetermined manner.

1 12. A handheld scanning dictionary apparatus, according to Claim 1, further
2 comprising:

- 3 (f) a microphone input operatively coupled to said controller;
4 (g) a speech-to-text module for receiving a voice input from said microphone
5 input and for providing a corresponding text input to said controller; and
6 (h) wherein said program includes program instructions for receiving as an input
7 the output of said speech-to-text module and for producing as an output at
8 least one of (a) an audible output on said audio output device which is
9 logically related to said input text in a predetermined manner; and (b) a text
10 output on said display which is logically related to said input text in a
11 predetermined manner.

12 13. A handheld scanning dictionary apparatus according to Claim 12, wherein said
13 program produces as an output at least one definition related to said input.

14 14. A handheld scanning dictionary apparatus according to Claim 12, wherein said
15 program receives an output at least one translation related to said input.

16 15. A handheld scanning dictionary apparatus according to Claim 12, further
17 comprising:

18 an input connection for coupling to an external keyboard, and for providing
19 textual input to said controller; and

20 wherein said program includes instructions which are executable by said
21 controller for alternatively receiving as an input text which is entered on a keyboard and
22 which provides an audible output on said audio output device which is logically related
23 to said input text in a predetermined manner.

1 16. A handheld scanning dictionary apparatus according to Claim 1, further comprising:

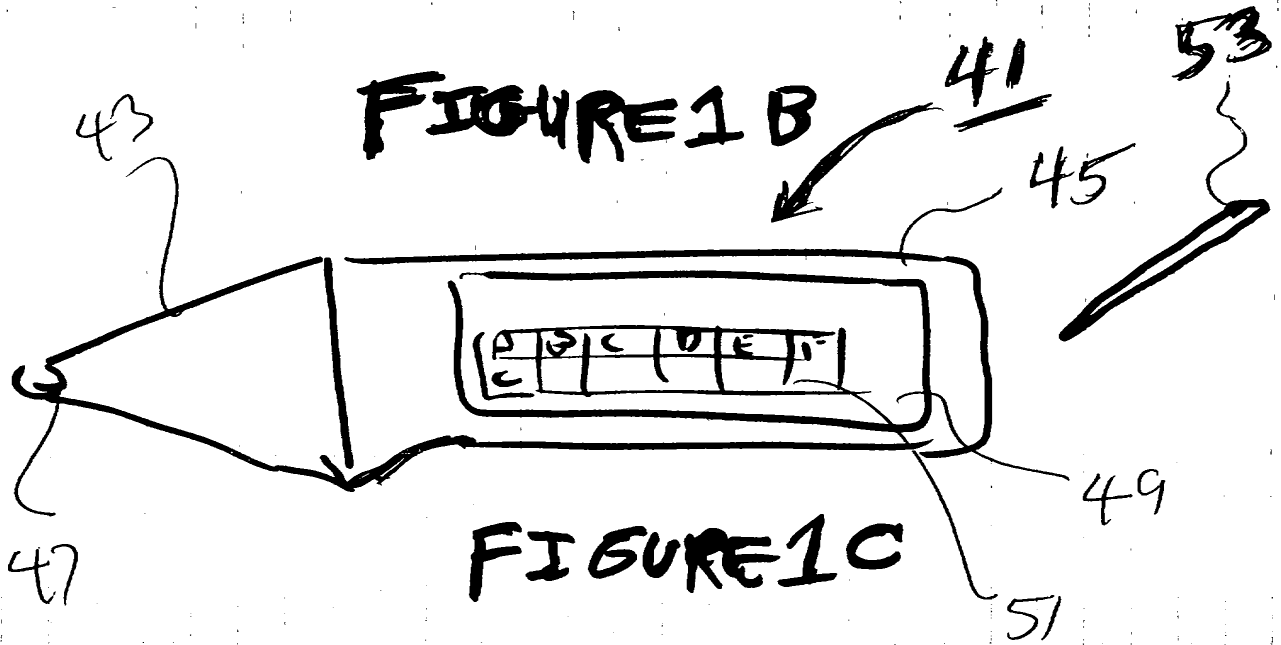
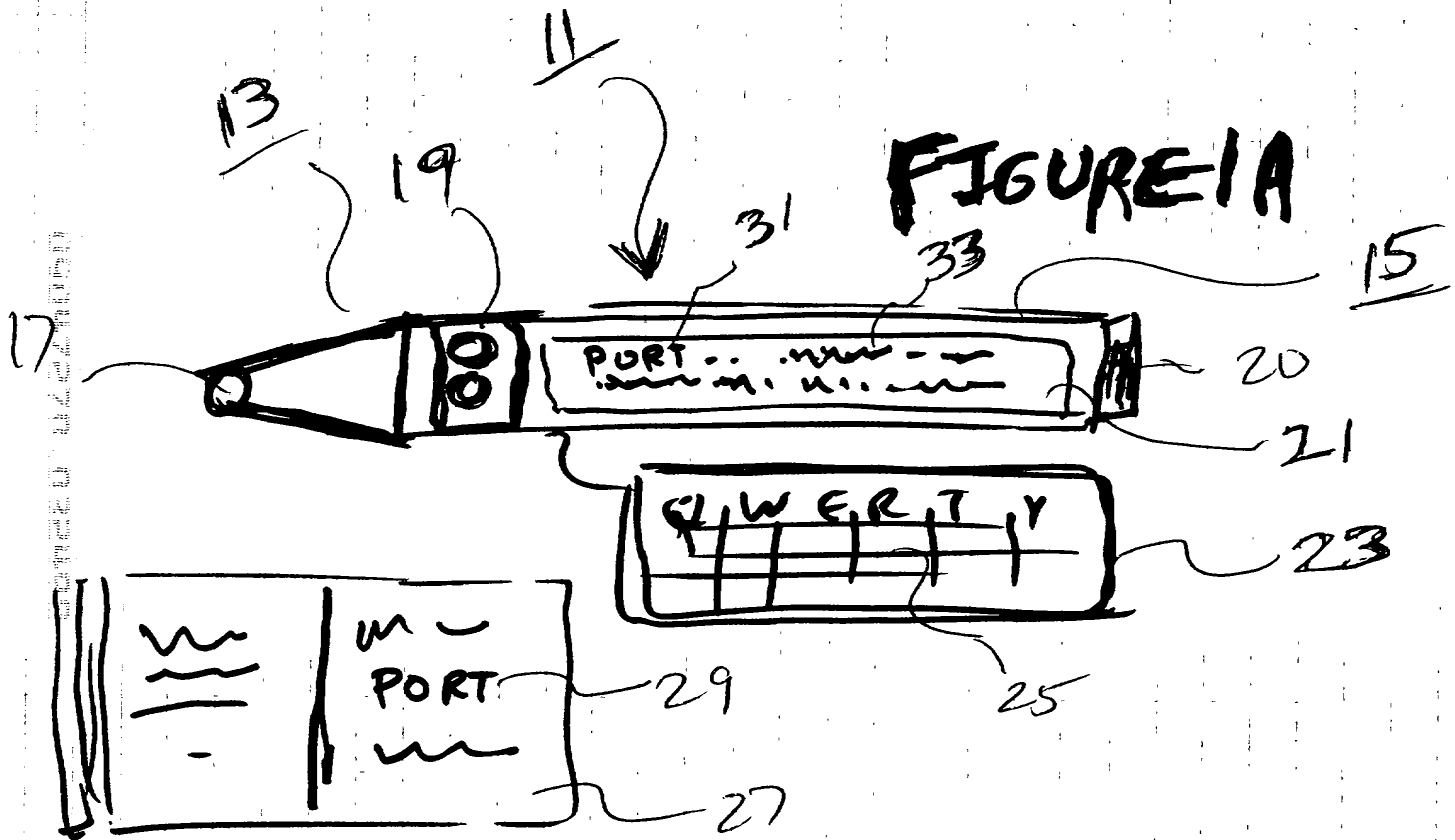
2 (g) a paging module operatively coupled to said controller.

3 17. A handheld scanning dictionary apparatus according to Claim 1, further comprising;

4 (f) a set of program instructions executable by said controller for generating a
5 touch screen graphical user input for receiving at least one input from user
6 interaction with said display.

PATENT SKETCH FORM

Attorney _____



PATENT SKETCH FORM

Attorney _____

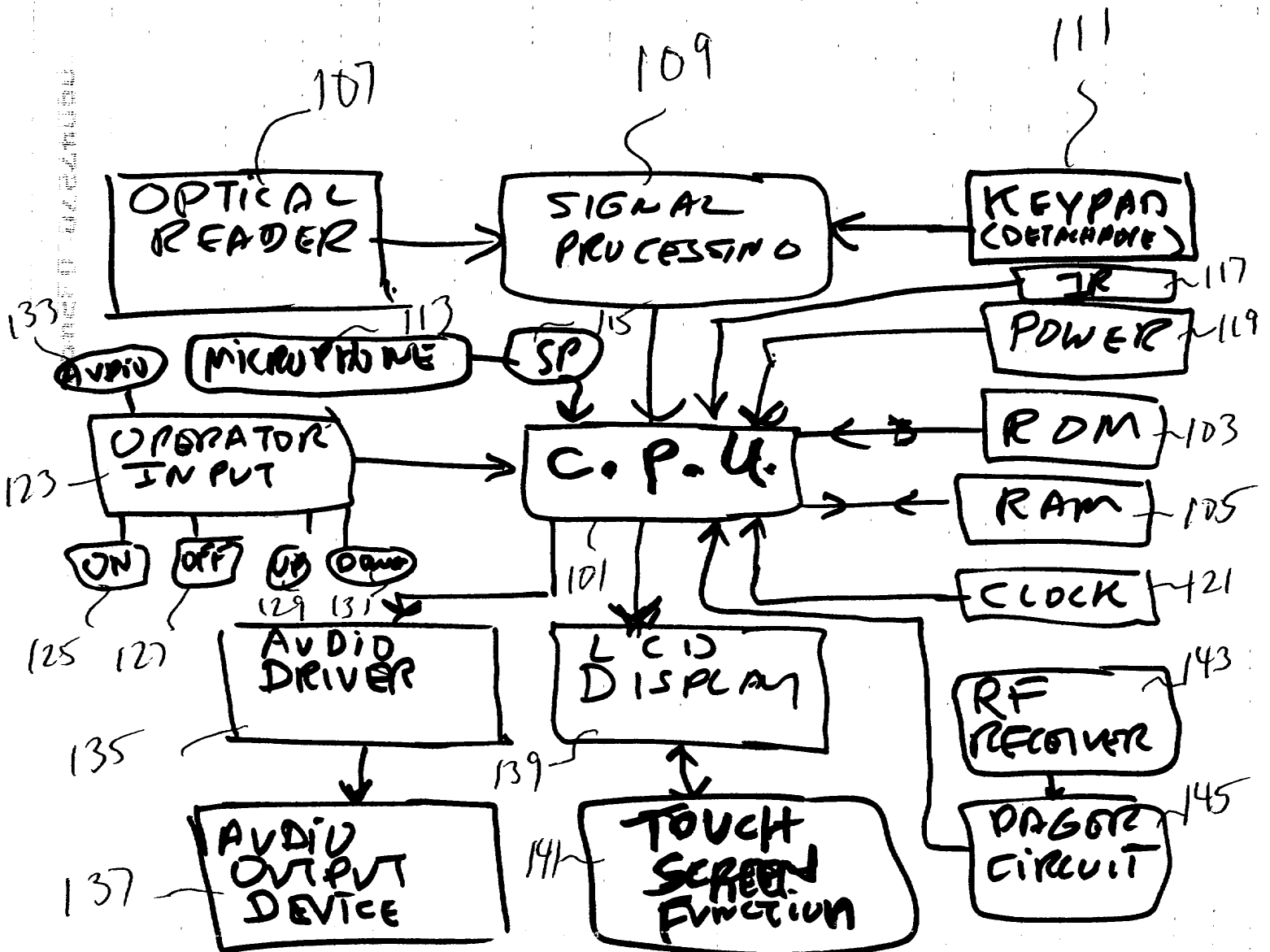


FIGURE 2

PATENT SKETCH FORM

Attorney _____

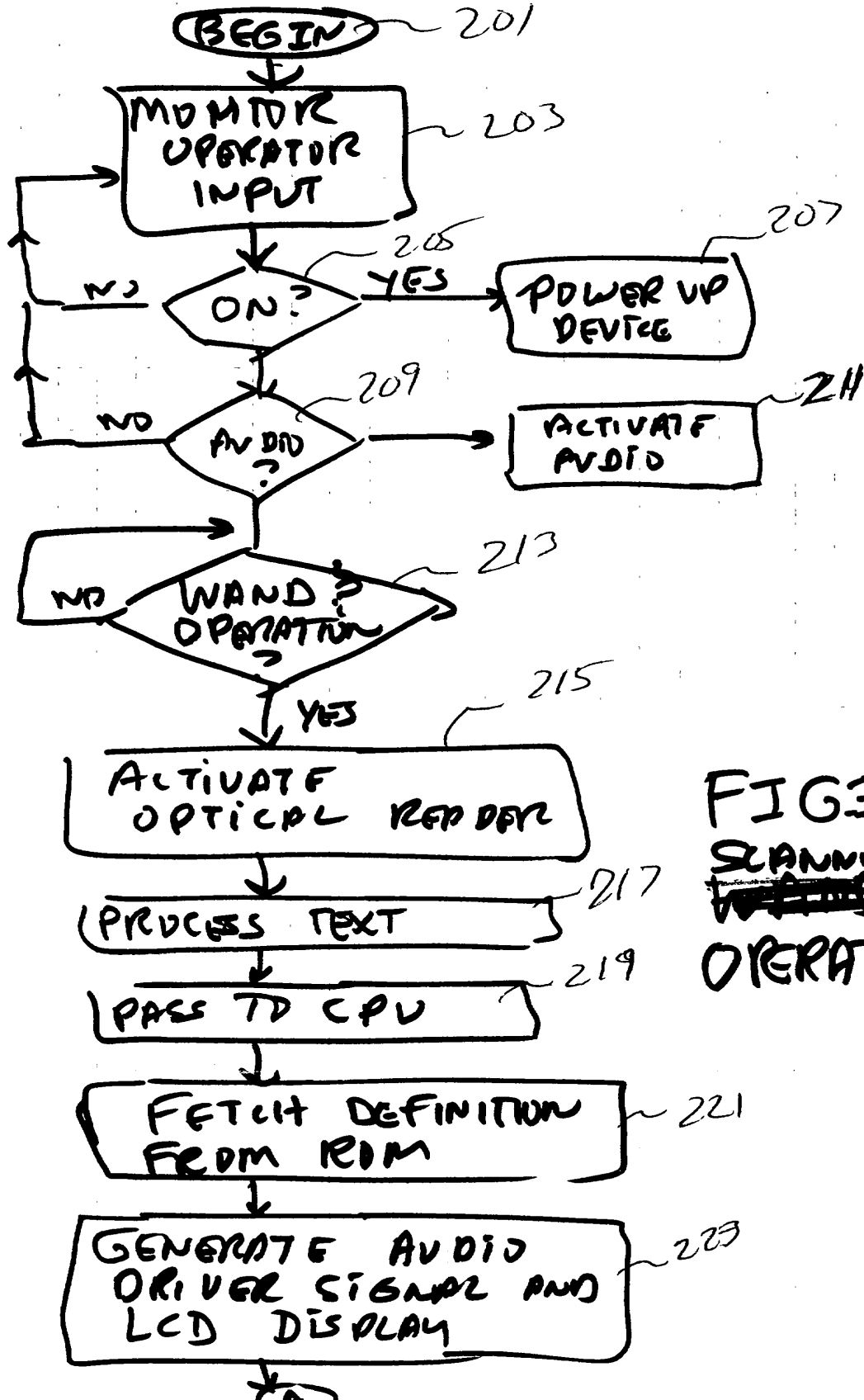


FIG 3A
SCANNING
~~WAND~~ INPUT
OPERATION

PATENT SKETCH FORM

Attorney _____

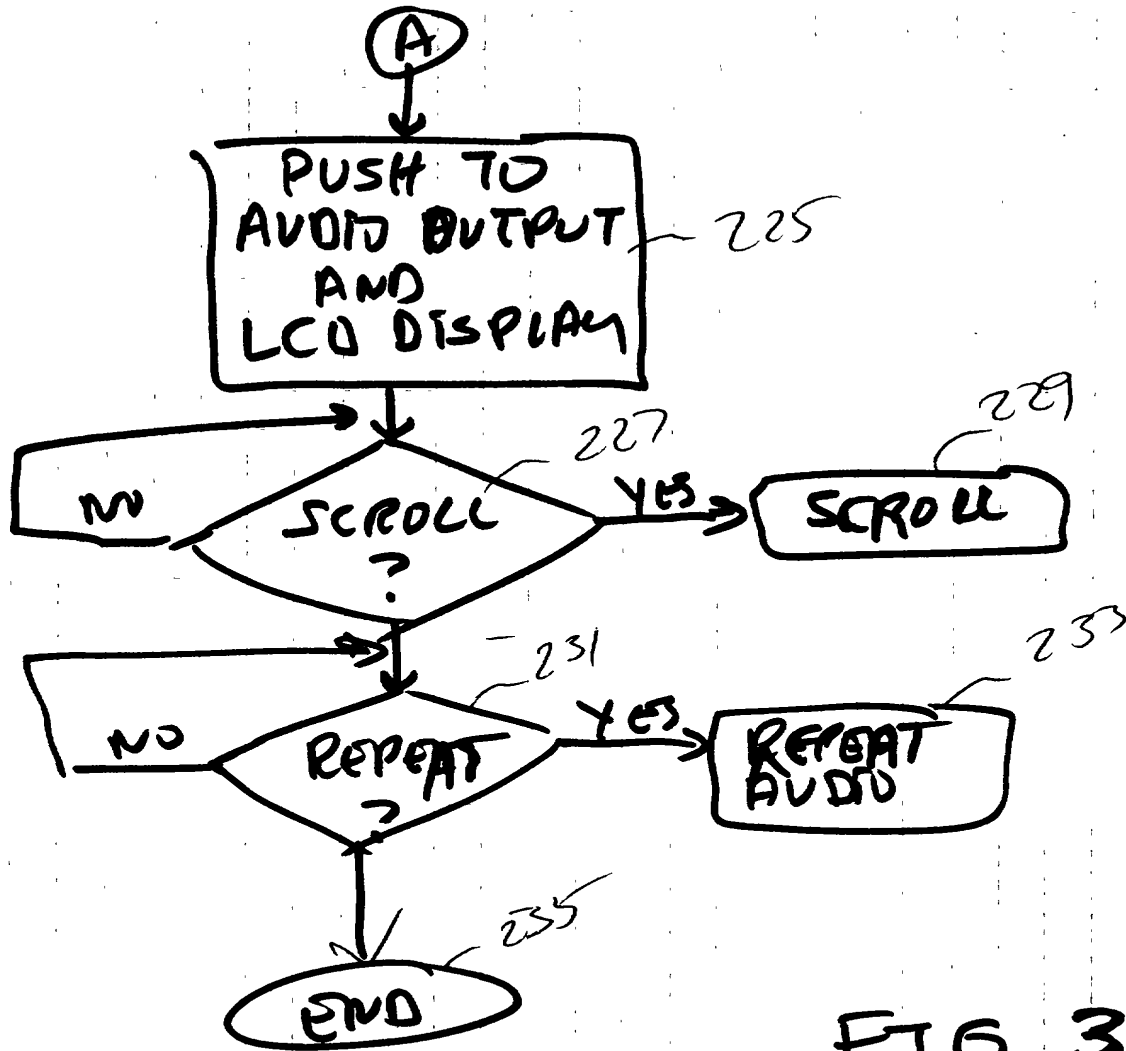


FIG 3B

PATENT SKETCH FORM

Attorney _____

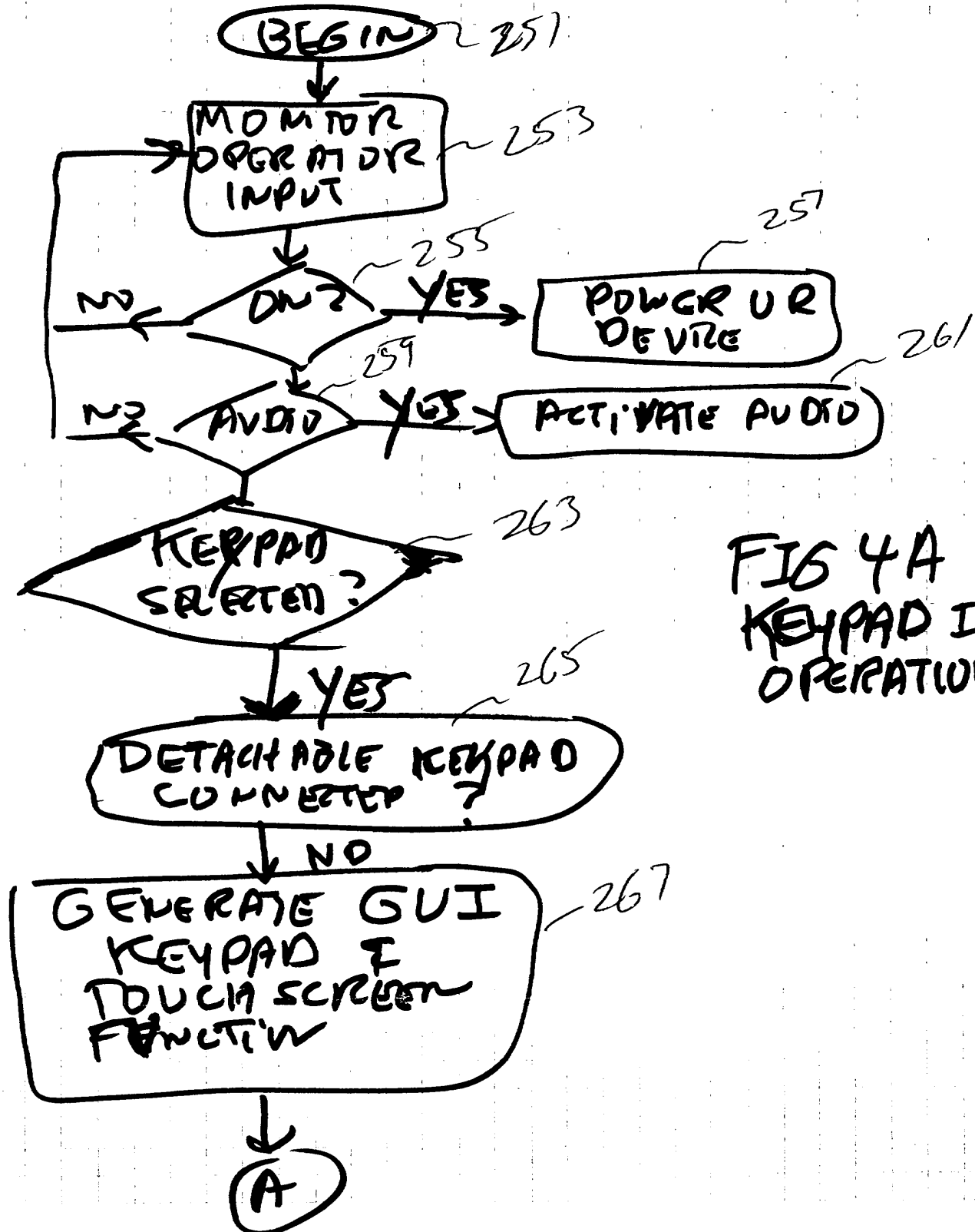
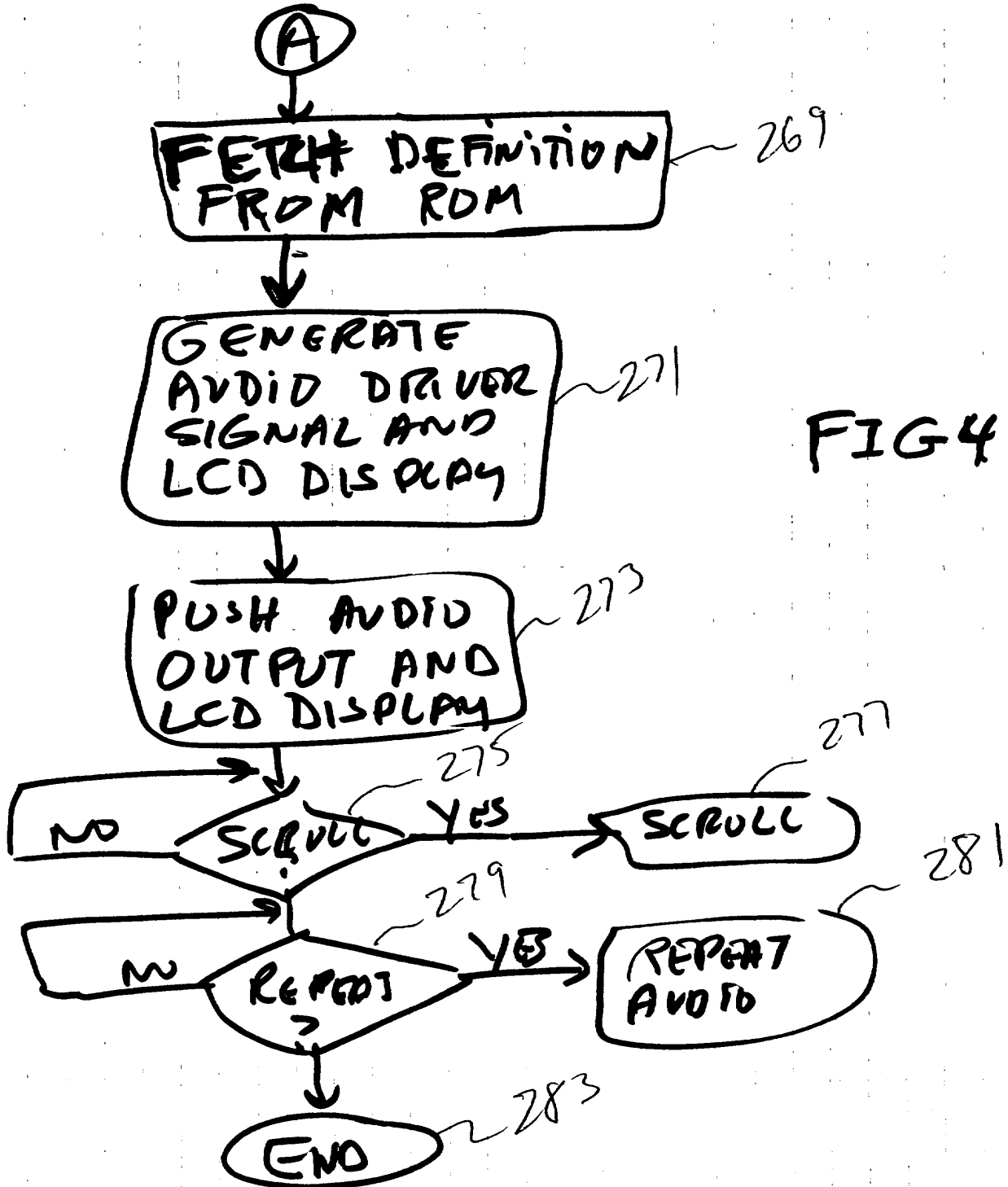


FIG 4A
KEYPAD INPUT
OPERATION

PATENT SKETCH FORM

Attorney _____



PATENT SKETCH FORM

Attorney _____

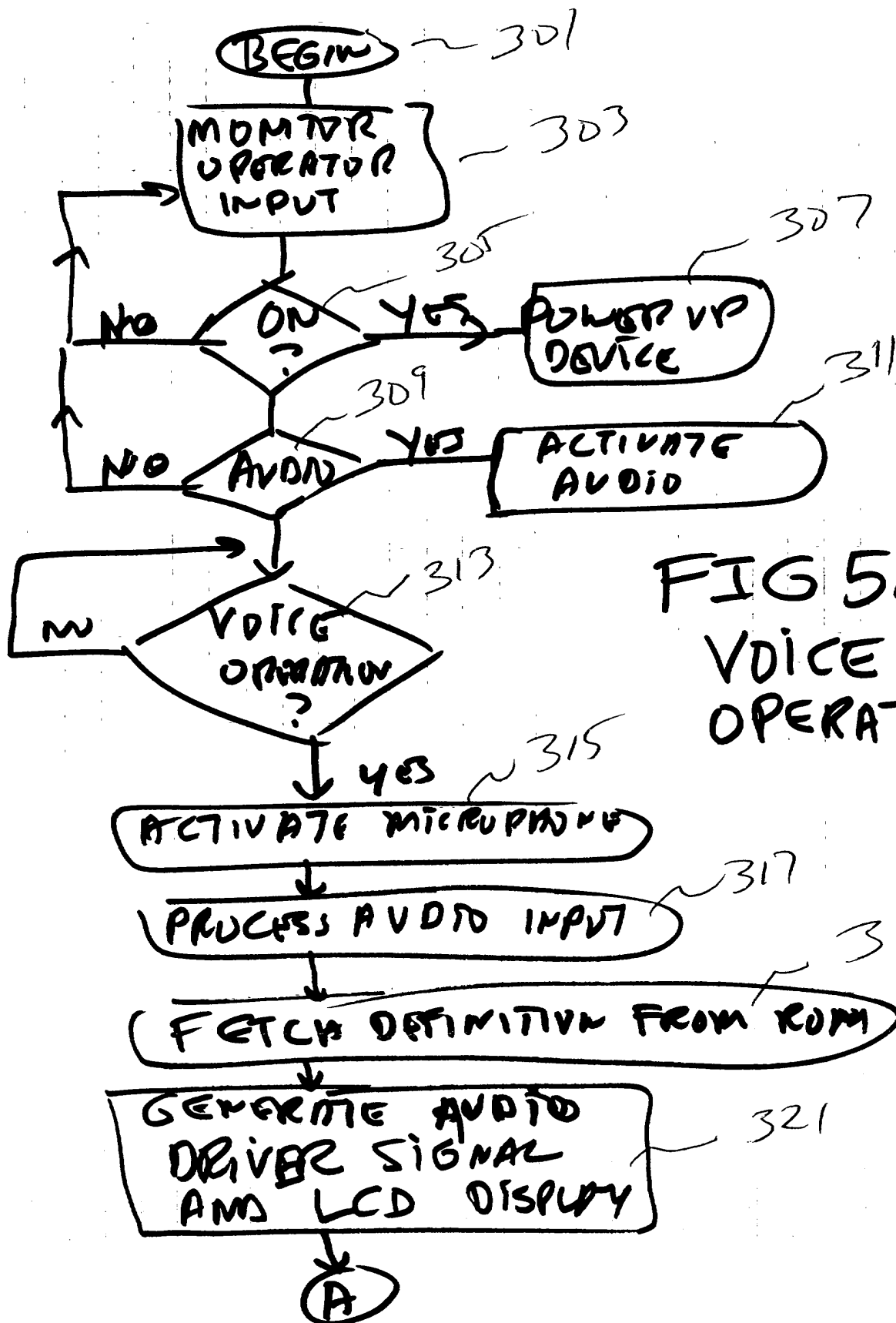
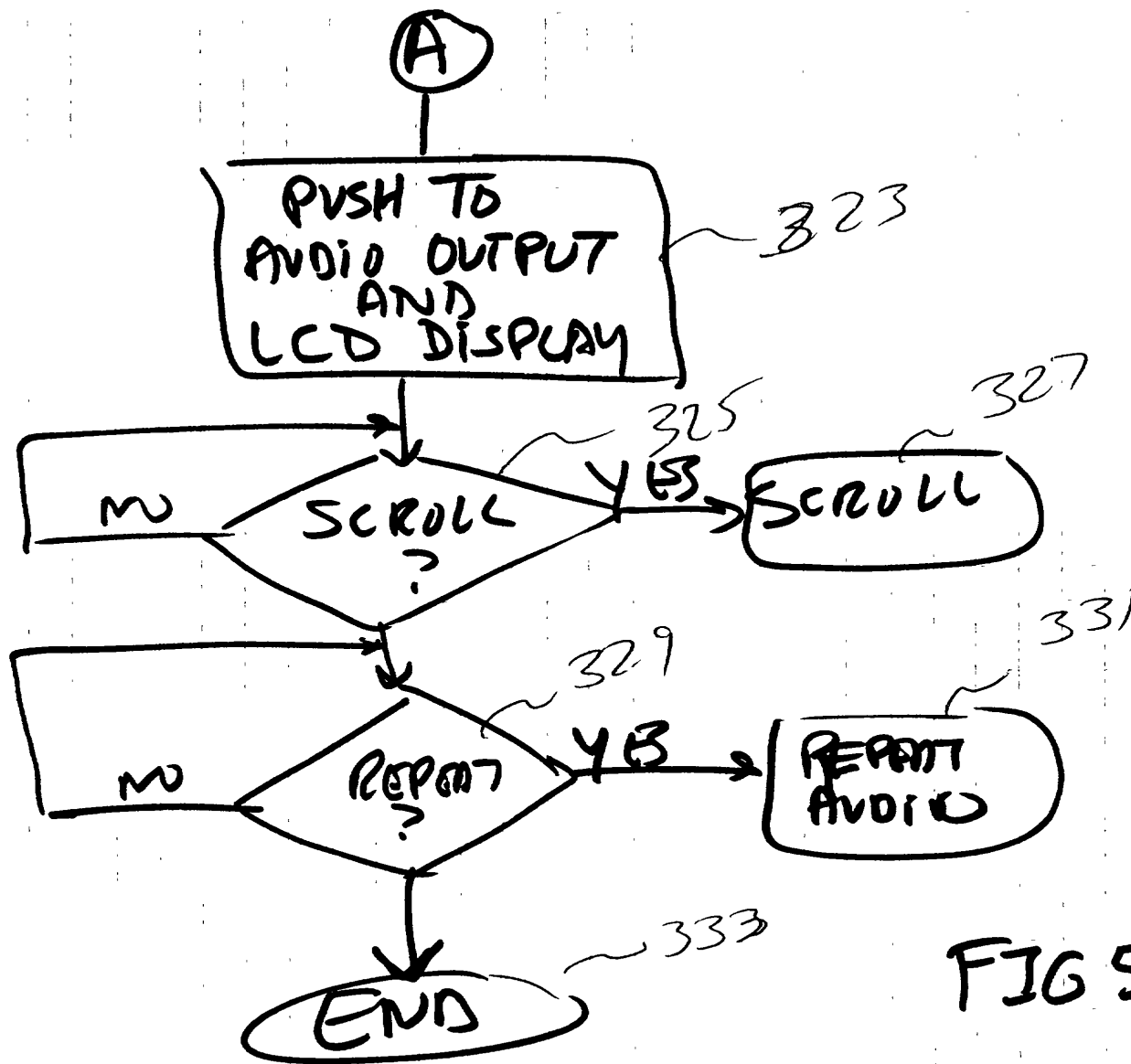


FIG 5A
VOICE INPUT
OPERATION

PATENT SKETCH FORM

Attorney _____



PATENT SKETCH FORM

Attorney _____

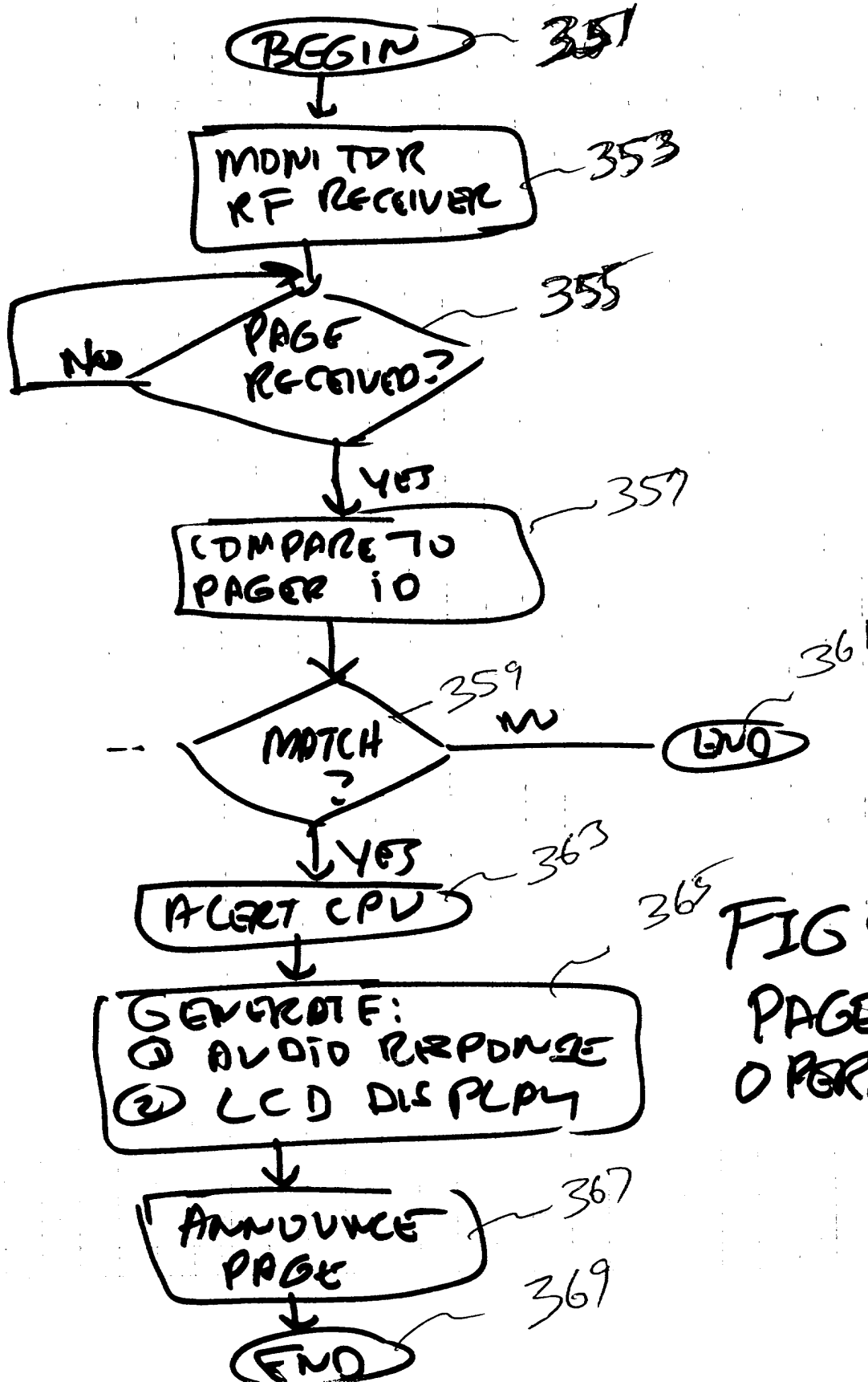
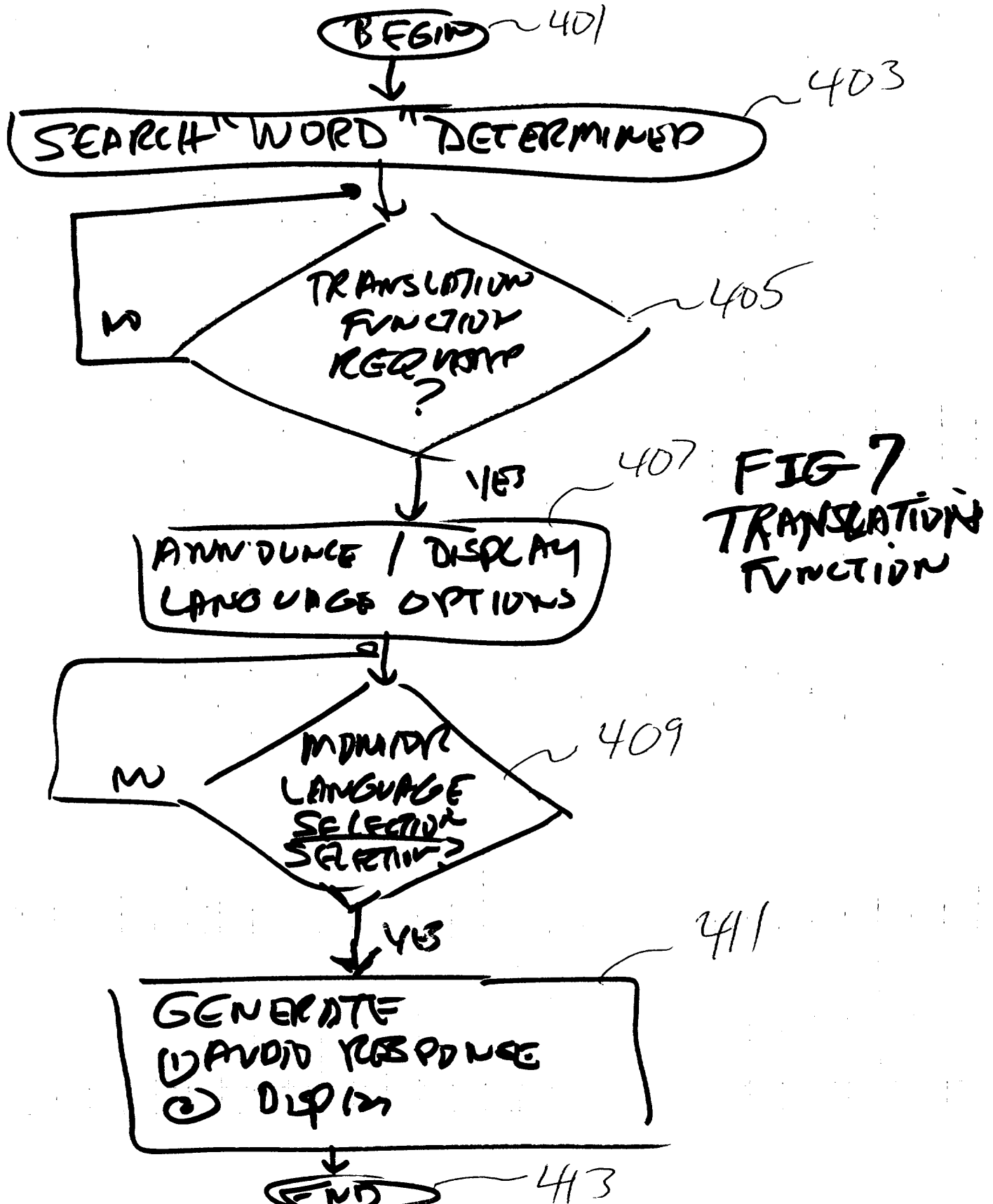


FIG 6
PAGER
OPERATION

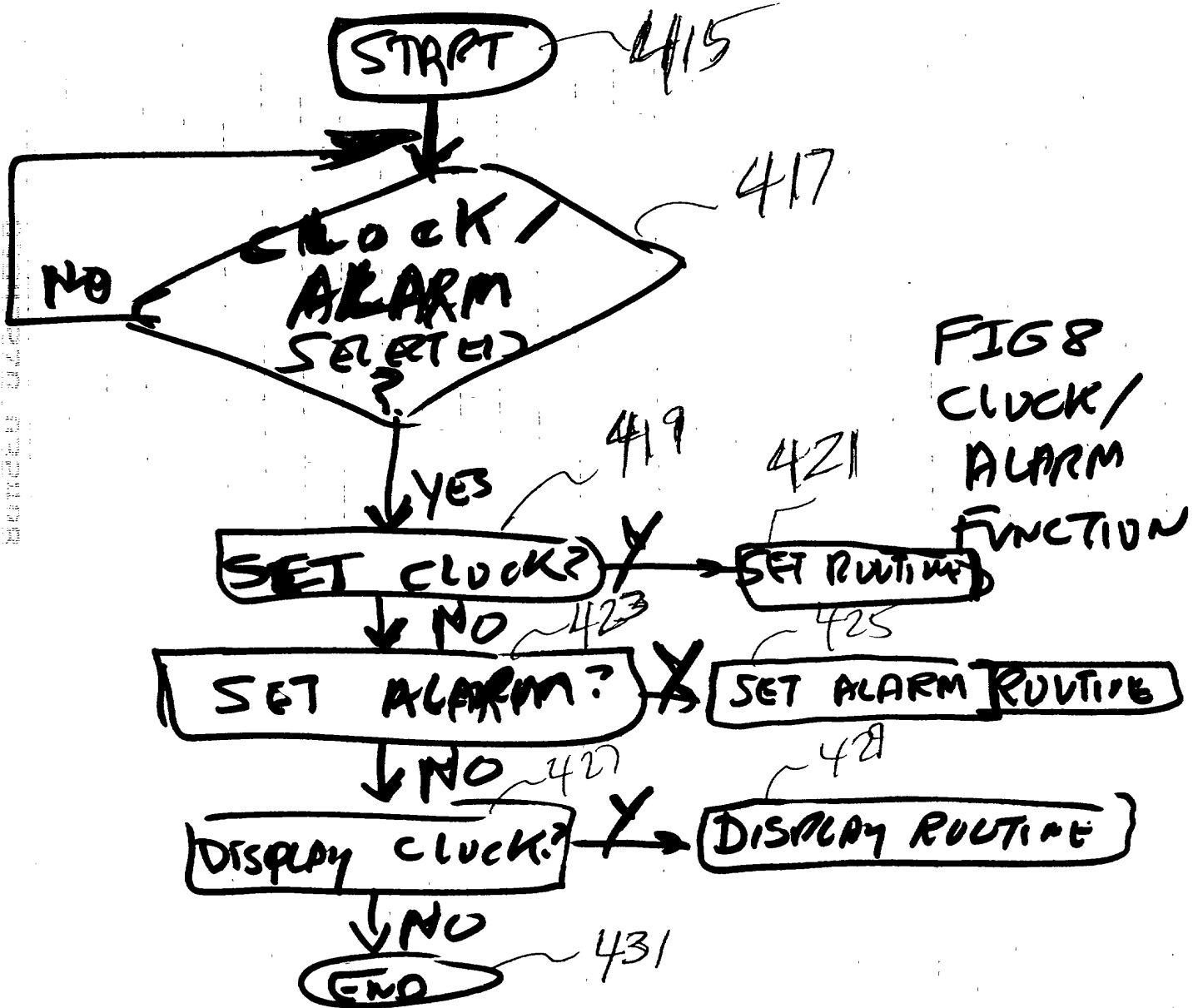
PATENT SKETCH FORM

Attorney _____



PATENT SKETCH FORM

Attorney _____



DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name,

I believe I am the original, first, and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

**METHOD AND APPARATUS FOR PROVIDING A HANDHELD
SCANNER-DICTIONARY APPARATUS**

the specification of which is attached hereto.

This application claims the benefit of U.S. Provisional Patent Application Serial No. 60/041,534; filed 25 March 1997, entitled *Method and Apparatus for Providing a Handheld Scanner-Dictionary Apparatus*.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint James E. Bradley, Reg. No. 27,536; Charles D. Gunter, Jr., Reg. No. 29,386; Andrew J. Dillon, Reg. No. 29,634; Melvin A. Hunn, Reg. No. 32,574; Kenneth C. Hill, Reg. No. 29,650; to prosecute this application and to transact all business in the U.S. Patent and Trademark Office in connection therewith.

Please send all correspondence to:

Melvin A. Hunn
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Inventor's signature: _____

Full Name of Sole Inventor: Jan Scott Zwolinski

Date of Signature: _____

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Citizenship: United States of America

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**VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 C.F.R. 1.9(f) & 1.27(C))--SMALL BUSINESS CONCERN**

I hereby declare that I am

- ☐ the owner of the small business concern identified below:
☐ an official of the small business concern empowered to act on
behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN: **Jan Scott Zwolinski**
ADDRESS OF SMALL BUSINESS CONCERN: HC 52, Box 831,
Graford, Texas 76449

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 C.F.R. 121.12, and reproduced in 37 C.F.R. 1.9 (d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- ☒ the specification filed herewith with title as listed above.
☐ the application identified above.
☐ the patent identified above.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights in the invention must file separate verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 C.F.R. 1.9(c) if that person made the invention, or by any concern which

would not qualify as a small business concern under 37 C.F.R. 1.9(d), or a nonprofit organization under 37 C.F.R. 1.9(e)

Each person, concern or organization having any rights in the invention is listed below:

- ☒ no such person, concern, or organization exists.
☐ each such person, concern or organization is listed below.

FULL NAME:
ADDRESS:

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 C.F.R. 1.27).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 C.F.R. 1.28 (b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Scott Zuckerman

TITLE OF PERSON IF OTHER THAN OWNER: _____

ADDRESS OF PERSON SIGNING: PO Box 8686 Hirsogwe Bay Tx

SIGNATURE: Scott Zuckerman

DATE: 3-25-97

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